of many of the scales pearly, especially abore and betreen the spots. A conspicnous black blotch on lateral line anteriorly. A row of about six salmon-olive spots along lateral line; abore these and below base of dorsal is a row of large faint diffuse blotches of the same color, and below them a series of faint smutty tinges, the whole forming a scries of about six obscure and broken cross-bars. Snout olive, mottled with bluish; a bright yellow band between eses above, a rers obscure pearly-blue streak belorr eye, and two or three similar ones before eye. Preorbital usually bluish, with more or less mumerous longitudinal streaks and dashes of golden yellom, around which the ground color forms reticulations; the preorbital sometimes pale salmon yellow, with a few lightbluish streaks. Cheeks, preopercle, and opercle pearly, with yellow shades and spots. Opercular membrane coppers orange. Vertical fins bluish, marked with small dusky salmon spots, Which form undulating cross-bars on candal; several blackish spots along base of dorsal. Yentrals, bluish white, faintly barred.

This species is rather commou in the eel-grass abont the Florida Keys, where it is known as the Grass Porgy, and sometimes as "Shad Porgy," from its occurrence with the "Broad Shad" (Gerres cinereus). It is taken in less numbers by the hook-and-line fishermen than the Jolt-head, Littlehead, and Sancer-ese Porgr, and it reaches a larger size than any of these, the largest seen being less than a foot in length. A few were taken in the seine near the shore. A single specimen was obtained by Professor Jordan at Cedar Key. This specimen and one of those taken at Key West hare the preorbital plain, as in the original type from Pensacola. Most of the specimens have the preorbital marked with bright dashes, somerrhat as in C. calamus.
10. Calamus medius (Poes) Jordan \& Gilbert.

Granmateus medius Poey, Ann. Lyc. Nat. Hist. N. Y., 18г2, 183, pl. vii, f. 4 (Haraua); Poer, Enum. Pisc. Cubens., 18i5, 56 (Harana).
This species is unknorn to us.
Indiana University, Jumuary 25, 1884.

DESCRIPTIONS OF TEN NEW SPECIES OF FISHES FROM KEY WEST, FLORIDA.

## By DAVID S. JOIEDAN and CEIARLES TK. GMEBERTC.

The month of December, 1883, was spent by Professor Jordan in making collections of the fishes of Key West, Fla., in the interest of the United States National Museum and of the musenm of the Indiana University. About 190 species were obtained, of which those enumerated below appear to be new. Typical specimens of each of these are
in the United States National Museum, bearing in the Museum Register the numbers indicated belor.

1. Dussumieria stolifera. (Catalogue No. 34964.)
2. Tylosurus sagitta. (Catalogne No. 34965.)
3. Querimana gyrans. (Catalogue No. 34966).
4. Atherinu arcea. (Catalogue No. 34967.)
5. Iyrichthys (Iniistius) rosipes. (Catalogue No. 34968.)
6. Doratonotus thalassinus. (Catalogue No. 34969.)
7. Gobiosomut couthecoum. (Catalogue No. 34970.)
s. Cremnobutes nox. (Catalogue No. 34971.)
8. Platophrys nebularis. (Catalogue No. 34972.)
9. Achirus (Beostoma) comifer. (Catalogue No. 54973.)

## 1. Dussumieria stolifera.

Body elongate, slender, moderately compressed, with the shape and general appearance of slender species of Stolephorus; belly not compressed to an edge. Snout rers sharp, tapering, the jars equal; cleft of mouth little oblique, the masillary reaching slightly beyond front of eve, about $\frac{21}{2}$ in head. Teeth minnte, but erident in both jairs. Eye large, 21 in head. Insertion of dorsal slightly nearer tip of snont than base of caudal ; the fin high, the longest ras two-thirds length of head. Insertion of rentrals under fourth or fifth ray of dorsal. Anal lor. Ventrals nearly half as long as head, slightly shorter than pectorals, which do not reach their base.
Head $3 \frac{3}{3}$ in length; depth $5 \frac{1}{2}$. D. 11; A. 17. Scales rather large, caducous, probably about 36 in a longitudinal series, judging from the impressions on the skin.
Color.-Translucent green, pale below; sides with a well-defiued silvery band as in Atherina or Stolephorus, about one-fourth depth of body and a little broader than pupil; a double row of dots along back before dorsal fin, and a single row behind dorsal; fins plain.
Very abundant in schools in the surf about Key West, in company with Stolephorus browni. All the specimens seen were of about the same size, about $1 \frac{2}{3}$ inches in length. It is probable that it does not attain a larger size.

We should ideutify our specimens with Clupea lamprotania Gosse, from Jamaica, were it not for the difference in the numbers of fin rays.

## 2 Tylosurus sagitta.

Very closely allied to Tylosurus scapularis J. \& G.
Body slender, not compressed, as broad as deep; caudal peduncle not strongly depressed, its depth about equaling its width; no keel on caudal peduncle; the lateral line not black, and not more conspicuons on tail than elsewhere.

Jaws slender, of moderate length, the upper jaw from eye contained $4 \frac{1}{2}$ times in length, and containing length of rest of head $1 \frac{7}{5}$ times. Diameter of eye about $\frac{1}{6}$ in interorbital width, 23 to 3 in postorbital part of head, about $7 \frac{1}{2}$ in upper jaw forward from eye.

Teeth slenter and pointed, those of inner row about 25 to 30 in each side of each jaw. Teeth and bones of head not green.

Maxillary not entirely concealed by the preorbital. Interorbital space with a long, narrow, mather shallow groove, with a median longitudinal ridge : the groose is sealy and widens slightly anteriorly. Two parallel ridges on oeciput.

Cheeksand operelesererywhere closely sealed. No gill-rakers. Seates not green, of moderate size.

Dorsal fill low, the posterior rays the shortest, the longest ray of anterior lobe $1 \frac{1}{2}$ in postorbital part of head. Anal higher than dorsal and beginning in advance of it. Caudal fin well forked. Pectorals about equaling length of postorbital part of head. Ventrals about half length of postorbital part of head, the insertion slightly nearer base of median candal rays.

Head $\frac{2}{6}$ 흥 in length ; depth about one-sixth head. D. I, 15; A. I, 17. Lat. l. about 225.

Color in life.-Light green abore, rendered dusky by fine dots; sides and below whitish silvery ; a well-defined dark bluish lateral stripe, narow and intense toward head, becoming much wider posteriorly. Several dark streaks formed of single series of fine black dots on middle of back. Sides of head, and of body in fiont of rentral fins, with conspicuous coarse black speeking; these forming a dark bar in front of opercle; angle of month dark blue; tip of lower jaw reddish.

Fins all pale; candal dusky at tip.
Three specimens, from 10 to 13 inches in length, were taken in the seine at Ker West.

## 3. Querimana gyrans.

Close to Q. harengus, but differing in coloration, size of scales, fin rays, se.

Body compressed. especially below; upper anterior profile deseending in a curve to the short snout; top of head transcersely convex, mouth rather uarrow, oblique, the symplysis of lower jaw forming an acute augle. Teeth in a single series in upper jaw, rather better developed than in species of Mrugil, but not eridently of different character. Eye large, equaling interorbital width, $3 \frac{3}{5}$ in head, about twice length of snont.

Origin of rentral fins midway between suont and end of anal fin; pectorals long, five times in length of body: rertical fins, apparently scaleless.

Head $3 \neq$ in length; depth $3 \frac{3}{4}$. D. IV-I, 7; A. II, $\overline{7}$ (or 8?). Lat. 1. 28 or 29 .

Color.-Some specimens (perhaps females) green above: sides and belly, silvery; middle of back with a large pale area. shiming silvery when in the water. Other specimens (perhaps males) with a broad coppery olive shade along the sides, extending on the back; color otherwise the same; the pale dorsal bloteh as in the other. Fins, pale.

This little fish was found to be very abundant about the market wharves at Key West, apparently feeding on the waste fishes thrown overboard by the fishermen. None of the many specimens obtained are more than three fourths of an inch long, nor is it likely that the species attains a much greater size.

The fishes swim abont in schools of about 50 at the surface of the water, the school having often something of a rotary motion like a school of whirligig beetles (Gyrinita). When so swimming the pale spot on the back is rery conspicuous, and the bronze-colored ones (males?) are readily distinguished from the green ones. When alarmed, the whole school sinks to the bottom. All the specimens obtained were dipped up with a pail from the boats.

It is probable that the specimens obtained at Charleston, and referred by us to Querimana harengus, belonged to this species. Unfortunately they have been destroyed.

## 4. Atherina aræa.

Body vers slender, compressed, the head slender and narrow, with sharply-pointed snout; mouth oblique, narrow, maxillary barely reaching vertical from front of orbit, $2 \frac{2}{3}$ in head; eye large, equaling interorbital width, $2 \frac{2}{3}$ in head; seales moderate, entire.

Origin of spinous dorsal midway between tip of snout and base of candal, much behind end of pectorals, about opposite tip of ventrals; length of pectorals equaling depth of body; rentrals half leugth of head; bases of rertical fins concealed in a sheath of seales.

Head $4 \frac{1}{2}$ in length ; depth 6. D. VI-1, 9; A. 1, 12. Lat. 1.38 to 42.
Color.-Translucent olive-green, the suout and mandible dusky; back with a median series of black specks, one on each scale; a similar series on each side the median row; no dark specks on sides; lateral silvery band broad, occupsing the greater part of the third row of scales, its width half diameter of orbit; a dusky area behind rent; a series of black specks along base of anal, and thence along candal peduncle to tail.

This species is rather common about Ker West, in company with its larger and much more abundant congener, A. stipes Miill. \& Trosch., ( $=$ A. laticeps Poey, A. veliana Goode \& Bean.) None were obtained of more than 2 inches in length.

## 5. Xyrichthys rosipes.

Body sharply compressed and of moderate height, the anterior pro. files not compressed to a sharp edge, the upper profile descending in a regular gentle curve from dorsal fin to end of snout, thus much less nearly rertical than in most species of the gemms; the snout comparatively lons and pointcd, the preorbital low; maxillary nearly reaching rertical from front of orbit, $3 \frac{1}{2}$ in head; teeth as nswal, no posterior canines; height of preorbital $\frac{1}{3}$ in head ; eye large, $1 \frac{1}{2}$ times interor-
bital width, $3 \frac{3}{3}$ in head (in somg); distance from snout to eye one-third head; a series of small scales below eye, head otherwise naked.

Two anterior dorsal spines, much elerated, with filamentons tips, their length two-thirds that of head; the third or fourth spine is the lowest, the spiues thence slightly increasing to the last; second spine conuected by membrane with the third; longest soft ras of dorsal about $\frac{23}{4}$ in head; caudal romnded, $1 \frac{1}{5}$ in head; rentrals $1 \frac{1}{5}$; pectorals $1 \frac{1}{2}$.

Head $3 \frac{2}{5}$ in length ; depth $3 \frac{1}{3}$. D. IX, 13 ; A. III, 12. Lat. 1. 23 or 24 .

The specimen described abore, 2 inches long, had the following coloration in life: Light olive, scarcely paler below, the head more yellowish ; body with fire irregular bromnish cross-bars, the first obseure, at the nape; the last forming a blotch at base of candal ; a small yellowish spot at middle of base of caudal and a fainter one above it; a dark olise band downirard from eye, with a spot-like band of the same color before it, and another, which becomes sellow, on the cheeks behiud it ; all three of these pass around the lower jars; an olive blotch on opercle; some brown dots behind eye; dorsal cherry red, paler posteriorly, darkest on the produced auterior rays; candal pale, scarcely tinged with reddish; anal cherrs red, the lateral stripes forming two spots of deeper red on the fin; pectoral plain; rentrals deep cherry red.

A second specimen, smaller in size, probably the female of the species, had a different coloration, as follows: Orange brown, ererrwhere much mottled, the edges of mans seales being bromn, the brown becoming sellowish on lower parts, five brown eross-bands darker and broader than in the other specimen, the first at nape, the last at base of caudal, ending behind in a sharply-defined convex curve. Two yellowish brown bauds across from eye over lower jaw. Tip of lower jaw of the same color; two similar bands across breast before ventrals. Dorsal and aual trausparent except where crossed by the bands. Candal and pectorals plain, rentrals deep brownish red.

Two specimens were obtained with the seine in the surf at Key West.

## 6. Doratonotus thalassinus.

Body much compressed, moderately elevated; its greatest width behind head tro-serenths of its height; candal peduncle short and deep; its length but little more than half its height; profile from dorsal to nape consex, carinated; occiput and supraorbital region depressed and flat, the snont protinding, the profile of top of head thus strongly concave.

Suout sleuder, sharp, compressed, its length $3 \frac{1}{\overline{3}}$ in head; month wide; maxillary, 4 in head ; teeth growing gradually larger anteriorly, the two front teeth in each jaw, distinctly the largest, canine-like, diverging, opposed to each other; a small but distinct posterior canine in upper jaw, none in the lower; eve moderate, little wider than interobital width, 5 in hean; cheeks with a single series of large sealen, 4 in num-
ber; opercle covered mith 5 or 6 similar scales; gill-membranes broadly united, free from the isthmus.

Dorsal spines robust and pungent, the first three with conspicnons filmentous appendages; first and second spines with their filaments abont equal, $1 \frac{1}{2}$ in head; without their filaments the second spine is slightly the longest, equaling distance from end of suout to middle of eye; the fin lapidly descends to the fourth spine, which is one-half as long as the second, then gradually xises to the ninth and highest, which is, however, shorter than the following soft rass; longest soft ray, $1 \frac{2}{3}$ in head; anal spines similar to those of dorsal fin, the longest abont onehalf' head; caudal evenly convex, its longest ray $1 \frac{1}{2}$ in head; rentrals short, abont one-half length of head, an elongate scale between them at base; pectorals reaching beyond the rentrals, but not to rent, 13 in head.

Membranes of vertical tins, with elongate scales on basal portion. Lateral line following untline of back one scale beyond end of dorsal fin, thence interrupted and continued on four scales of middle of caudal peduncle.

Heald, $2 \frac{23}{4}$ in length; depth, $2 \frac{2}{3}$. D. IN, 10 ; A. III, 9 ; Scales $1 \frac{1}{2}-20$ (pores)-6 $\frac{1}{2}$.

Color in life.-Very intense grass-green, about uniform orer the body; head more rellowish, slightly paler below: opercles mesially a little darker; iris red, with a green ring; dorsal, aual, and caudal grass-green, mottled with light orange; tips of longer spines green, of short ones orange ; ventrals, deep greeu, the membranes largely orange; pectorals, light vellowish.

A single specimen, $\frac{23}{4}$ iuches in length, of this most beantiful species, was obtained with the seine in eel grass at Key West.

## 7. Gobiosoma ceuthœcum.

Body slender; head depressed, flat above, narron and slender; eyes large, the interorbital space very narrow; sumat not blunt: mouth terminal, oblique, maxillary reaching to belor ere, about one-third length of head ; chin with a fringe of short, whitish barbels, arrangell in two rows; eye large, rather more than one-fourth length of heal. about three times interorbital width.

Tertical fins high, none of the rass or spines producen : metultane of last dorsal spine reaching origin of soft dorsal: pectorals long. reaching rertical from vent, one-fouth length of body: none of the uper mys silk-like. Ventral not reaching rent. one and tivesixthe in head. Head and body sealeless.

Depth one-half head, which is three and two-thints in length. D. VII, 10; A. 10.

Upper half of head and body of a warm hown. beine corered with rery close-set, coarse, bromn siectis; fenm oblong. colorless areas ahong base of dorsals, and a smaller one on hack of catulal perluncle: head and body below translucent, this meeting the hown in a shaply de.
fined line along middle of sides; back with five or six blackish cross. bas from back to middle of sides, below which they extend in five or six short T -shaped projections; a short brown streak backwards and downwards from eye ; a small brown bar obliquely across base of upper peetoral rays: a broad jet-black bar across base of eandal, not including mpermost and lowermost caudal rays.

A single specimen 1 inch in length was taken from a cavity of a sponge at Key West. It is possible that it should be regarded as the type of a gemis distinguished from Gobiosoma by the presence of the small mental barbels.

## 8. Cremnobates nox.

Snout not very acute, the upper and lower profiles of head nearly evenly conrex; month large, maxillary reaching slightly beyond eye, one half length of head. Eye large, equaling length of snout, greater than interorbital width, 4 in head (to end of opercular spine); interorbital width. 4 采 in head; nasal, snpraorbital and occipital tentacles 1 resent; those on snout and above the orbits, simple, slender filaments, the latter about as long as diameter of orbit, one of them divided to the base, the oither simple; the tentacle on each side of nape is a compressed slip of skin higher than wide, the margin meven but not fringed.
Anterior dorsal spines not much elevated, not higher than some of the posterior spines ; the first and second spine abont equal, $\frac{21}{2}$ in head; the third spine is shorter, about equal in length to the fourth, from which it is separated by a wide membrane, which is, however, not at all notehed. The spines thence increase in length toward the last. Caulal $1 \frac{1}{3}$ in head; pectorals reaching anal, nearly equaling length of head; rentrals not reaching rent, $1 \frac{1}{5}$ in head.
Scales large, 4 series above lateral line and 4 below.
Head $3 \frac{3}{5}$ in length; depth $3 \frac{5}{6}$. D. III + NXVII; A. II, 18. Lat. 1. 34 (tubes.).

Color.-Body and fins miform blackish brown; a few small sil-very-white specks ou dorsal region, mostly along base of dorsal fin; head and base of pectoral fin with light pink areas and mottlings; snont pink above; nape with a pink cross-bar' a dark streak upwards and backwards from eye to nape; a light streak from eye backwards to operele aud one backwards and downwards; lower jaw mottled with light and dark. A small roumd, black sloo, near base of dorsal between twenty-third and twenty-fifth spines, and one between twentyeighth and thirtieth, both very faintly ocellated with lighter. Slight whiti,h tips on reutrals and lower edge of candal.
This species is known from a single specimen, $1 \frac{3}{4}$ inches long, taken with the seine in algat on a rocky bottom at Key West. Its congeners, C. marmoratus Steind., C. fasciutus Steind., and C. a!finis Steind., were found in the same waters, C. marmoratus being moneh the most abmulant of the four, and reaching the largest size.

## 9．Platophrys nebularis．

Body ovate，deep anteriorly，the profile descending steeply，rendered abruptly concave in front of interorbital space by the conspicuonsly pro－ jecting short snont．Mouth very small and oblique，the maxillary reach－ ing rertical from tront of lower eje， $3 \frac{3}{}$ in head；tip of lower jaw en－ tering the profile．Teeth fine，conical，in two series in the upper jaw， one in the lower；those of the onter row in upper jaw larger and more widely separated than those of the inner series．

Snout very short，about one－fifth head，equaling interorbital width． Interorbital space narrow，deeply concave，closely scaled．Eyes large， the lower in advance of upper，its diameter $3 \frac{2}{3}$ in head．Gill－rakers obsolete， 7 rudiments on horizonal branch of anterior areh．

Scales moderate，not extending on the fins，those on colored side ctenoid，those on blind side smooth．Arch of lateral line short and high，its base contained $4 \frac{1}{2}$ to 5 times in the straight portion．

Dorsal beginning opposite anterior nostril，the rays neanly uniform in length，the longest about half head．Pectoral of colored side $4 \frac{3}{4}$ in length．Tentral of colored side beginning under middle of lower eye， with six rays；the right rentral with five rays．

Head 4 in length；depth 1⿳亠丷厂犬 ．D．S5 ；A． 64 ．L．lat． 75 （pores）．
COLOR IN LIFE．－Light grayish with reddisi tinge，covered with small round spots of darker gray and with lighter rings inclosing spaces of the ground color．Vertical fins similarly colored，with a small black spotnear base of each ninth or tenth ray．Two black spots on median line of body divide the length into nearly equal thirds；some other small black spots scattered over colored side．

This species is very common at Key West in clear，shallow water on sandy bottom．The largest of the numerous specimens taken is 3 inches in length．

The name Platophrys has priority over that of Rhomboidichthys Bleeker．We have therefore adopted it instead of the latter．

10．Achirus comifer．Subgenus Bæostoma Beau．
Eyes small，nearly twice the interorbital space， 6 in head．Pectoral of colored side well developed，half as long as head；that of blind side wholly wanting in all our specimens．Dorsal and anal of equal height， the posterior rays longest，two－thirds length of head．Caudal rather sharply pointed，slightly more than oue－third length of body．

Scales small，those on front of head and along back anteriorly en－ larged and spinous，the largest perhaps three times as large as those on sides．Right side of body beset with conspicuons black cilise，some of them clustered together；six of these clusters are more evident than the others，three above and three below lateral line．

Head $3 \frac{1}{2}$ in length；depth $1 \frac{3}{5}$ ．D． 50 ；A．37．Scales in 65 oblique series．

Head，body，and fins somewhat mottled with varying shades of olive－ gray，some of the darker marking with a tendency to form vertical lines；
entire body and fins also with romed blackish spots of rarious sizes. Posterior half of blind side dusted with fine dark points.

Four specimens, rarring from 1 to $2 \frac{1}{2}$ inches long, were taken with the seine at Key West. They occur on sandy bottoms in shallow waters.

Indiana University, February 15, 1884.

## NOTE ON CARANX RUBER AND CARANX BARTHOLOMæI.

## By DAVID S. JORDAN aUd CHARELESIM. GELBERT.

In our Review of the American Carangine (Proc. U. S. Nat. Mus. 1883, 188-207), we have provisionally referred (p. 198) the names Caranx bartholomei O. \& V., Caranx cibi Poes, Caranx iridinus Poes, and Caranx beani Jordan, to the synonsmy of Caranx ruber (Bloch)=Caranx blochi C. \& T. An examination of many specimens collected by Professor Jordan of the "Cibi amarillo" (Carenx cibi Poes) and the "Cibi carbonero" (Caranx iridinus Poey) of the Harana markets shows that the two species are really distinct, althongh elosely related. The "Cibi carboncro" is more elongate than the "Cibi amarillo." the depth in specimens a foot long, $3 \frac{1}{2}$ in length; the head smaller, $3 \frac{2}{\overline{3}}$ in length, the straight portion of the lateral line longer, considerably longer than curred part, $2 \frac{1}{2}$ in body. In color it is bluish olive, silvery below, scarcely tinged with yellow in life; a vaguely defined horizontal stripe of clear blue just below the dorsal fin. Dorsal yellowish gray; other fins dusky olive; a distinct blackish bar extending the length of the lower lobe of the candal.

In the "Cibi amarillo" (called Yellow Jack at Ker Trest) the body is rather deep, the depth in specimens a foot long; $2 \frac{4}{5}$ in length : the heard $3 \frac{1}{5}$; the straight part of the lateral lime scarcely as long as curved part, $2 \frac{4}{5}$ in head. The color is bluish silver: in life, ever?mhere strongly Tashed with golden; the soung sometimes with round golden spots; blue stripe along side of back rery faint or obsolete; yellow brightest on back, on iris, and along base of anal; fins all pale yellow, the color most intense on anal and rentrals ; no blackish stripe on lower lobe of eandal.

In numbers of fin rass and sentes, in dentition, and in form of the fins, the two agree very closely. The soft dorsal and anal, although very low auteriorly, are in both slightly falcate. Our analysis of species on page 194 is therefore erroneons as regards these species.

The following is an outline of the synonymy of the two species, which may be amplified by reference to page 198:

Caranx ruber (Bloch) Jor. \& Gilb.-Cibi carbonero; Cibi mancho.
Scomber ruber Bloch, Ichth. taf. 34 ?
Corane blocki Cur. \&t Tal. ix, 69, 1033.
Caranx iridimus Poer, Mem. Cuba, II, 2:6, 1860.
West Indies.

